Monitoring Object-Centered Constraints on Views Through Evaluating Queries as Search

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Abstract

Object-centered constraints are a computationally practical type of constraint that can be defined on any network of data. These constraints can be incrementally maintained by searching for constraint violations about points of change within a database. It may be infeasible to define a constraint on the base data or base relationships of a database, but preferable to define it on a view. When attempting to detect constraint violations, some part of the view will need to be instantiated. This partial view instantiation can be performed by evaluating the query that defines that view as a search about the point of change in the network.This can significantly reduce the number of pages accesses needed to determine if the constraint is violated.

Keywords: Constraints, Efficiency, Views.

1 Motivation

Object-centered constraints [Delcambre91] are both a computationally practical and highly expressive type of integrity constraint that can be applied to any database which can be considered a network of information. It may be easier to define constraints on a view of a database instead of the database as a whole. If the view across the whole database needs to be recomputed each time an attempt is made to detect a constraint violation, then the constraint on the view may be computationally impractical to detect.

Because the incremental constraint maintenance algorithms which are used to maintain object-centered constraints access only a small part of the database on which they are defined for any particular change, only a small section of the view will need to be accessed. This section of the view can be found by searching for elements adjacent to a given element of the